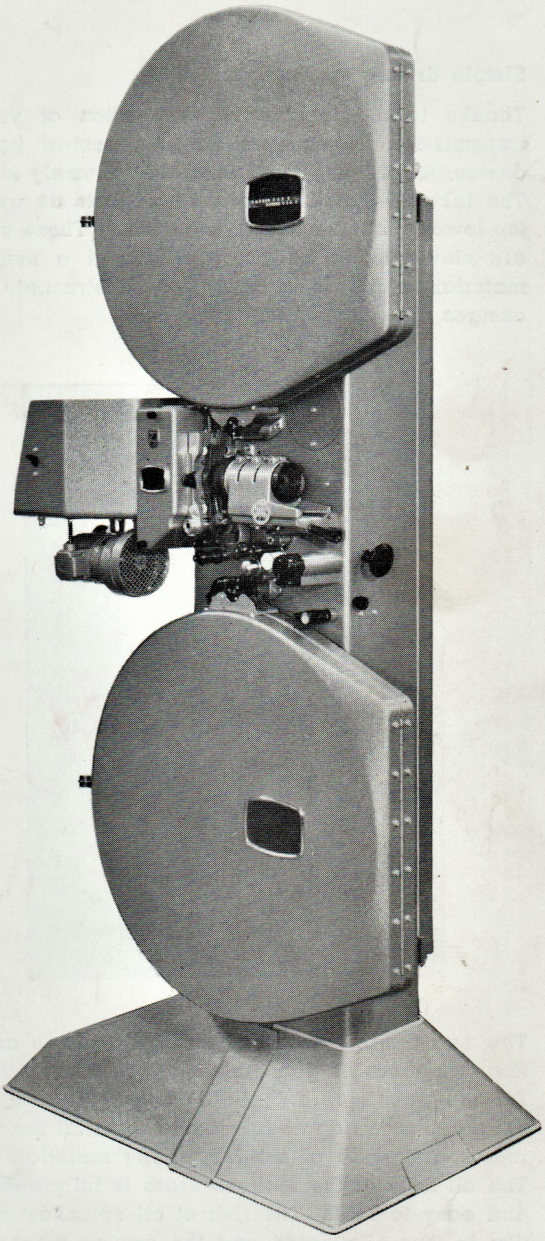
PHILIPS

Projector FP 20 G



The FP 20 G projector is specially intended for use in smaller cinemas, preview theatres, film and television studios, etc. Its principal features are:

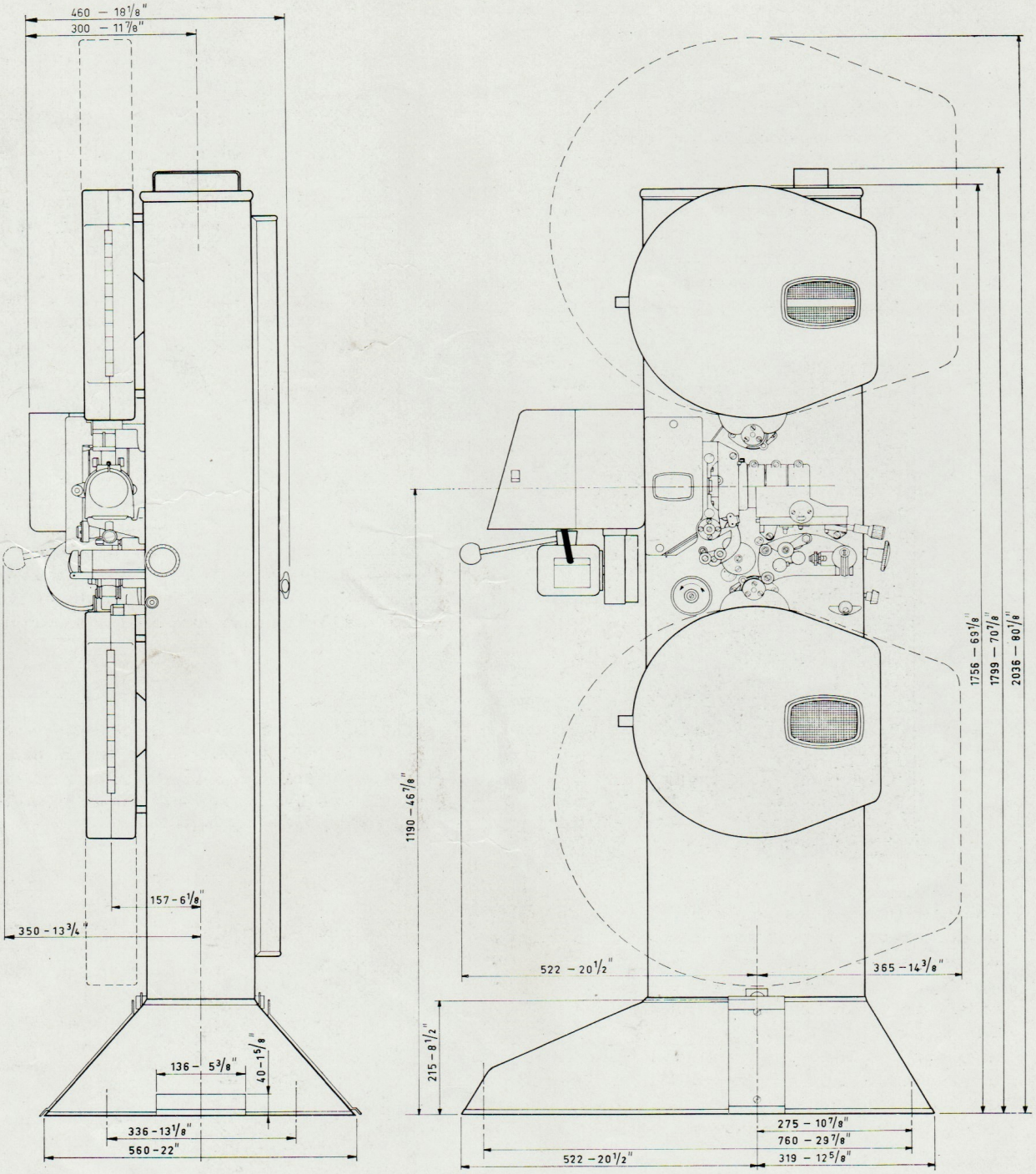
- Simple and logical construction.
- Very simple driving mechanism, using a minimum of transmissions.
- Very easy threading of the film, the film path containing the smallest possible number of parts.
- Perfectly steady picture; curved film gate.
- New design of framing device.
- Very little maintenance.
- Suitable for all kinds of 35 mm films.
- Easy interchange of projection lenses without refocusing.
- Double-speed single-blade shutter; hence very high light efficiency.
- Equipped with two 1000 W, 110 V incandescent lamps, type 7240 C.
- Facilities for remote focusing control.

Cinema

Projector FP 20 G

PHILIPS

Cat. A-II-26-E


460 – 18 1/8"
300 – 11 7/8"
157 – 6 1/8"
350 – 13 3/4"
136 – 5 3/8"
40 – 1 5/8"
336 – 13 1/8"
560 – 22"
1190 – 46 7/8"
215 – 8 1/2"
522 – 20 1/2"
365 – 14 3/8"
1756 – 69 1/8"
1799 – 70 7/8"
2036 – 80 1/8"
275 – 10 7/8"
760 – 29 7/8"
522 – 20 1/2"
319 – 12 5/8"

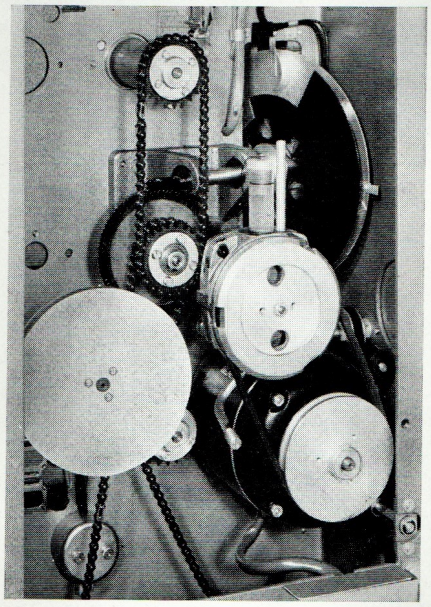
Construction of the projector

Rectangular steel housing

The skeleton of the projector consists of a rectangular sheet-steel housing. Its front panel is completely flat, so that components to be fitted subsequently will not require any special alignment to ensure a smooth running of the film. Projection up to 15° upwards or 25° downwards is possible by tilting the whole housing around pivots in its base.

Simple driving mechanism

Thanks to the ingenious combination of various transmission systems and a new central framing device, the driving mechanism is extremely simple. The take-off and the take-up sprockets as well as the lower spool are driven by chains. These chains are slow-running on chain-wheels of a synthetic material which is practically indestructible and ensures absolutely silent operation.



The new framing device requires no phase correction and hence no gear transmission for this purpose. All the spindles and shafts run in sealed ball-bearings, requiring no lubrication, and all the guide rollers are made of self-lubricating material.
The oil bath of the Maltese cross is fully enclosed and easy to refill. The risk of oil splashes on the film is thus eliminated and the driving mechanism does not need to be housed in a sealed compartment; it is therefore readily accessible at all times.

Intermittent mechanism

The film is moved by means of a normal 90° Maltese cross, made of the same high-quality material and with the same precision as that of other Philips projectors. Thanks to the light weight of the intermittent sprocket, its wear is reduced to a minimum.

Rotary shutter

The disc-shaped, single-blade shutter rotates with twice the speed of the cam shaft, i.e. with 2,880 r.p.m. As a result of this double speed and of the large diameter of the shutter, its efficiency is as high as 54 %.

The shutter is equipped with ventilating blades. Behind it there is a disc provided with curved strips and with a small window. The ventilating blades have a double function:

- They ensure perfect cooling of the film, requiring neither an air blower nor water cooling.
- The air current controls the passing and cutting off of the light beam: As soon as this air current is sufficiently strong — i.e. when the projector has attained a sufficient speed — it makes the disc rotate so far that the window is just in front of the picture gate of the projector. As soon as the speed of the projector becomes insufficient, the disc returns automatically to its initial position, thereby cutting off the light beam.

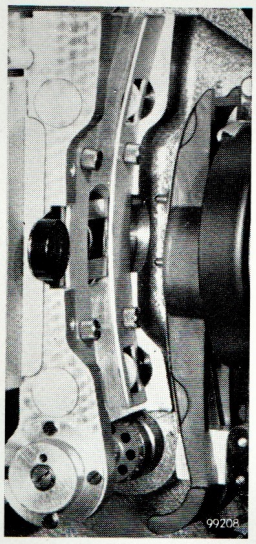
Film path

The carefully designed film path is simple and logical. As several functions have been combined, the number of parts is surprisingly small. Thus, the feed and the hold-back sprocket serve also as fire-trap rollers, whilst the pressure skates and the pad shoe of the intermittent sprocket constitute a single unit. The number of manipulations for threading the film is therefore less than ever before.

Film gate

On account of the excellent experience obtained with the Philips projector for 70 mm film, the FP 20 G projector, too, is equipped with a curved film gate which ensures perfect steadiness of the picture both vertically and horizontally.

The runner strips can easily be replaced, without the use of tools. Novotext, steel or velvet-covered strips can be used; the left-hand and the right-hand strips can be interchanged, which doubles their life. Moreover, the three kinds of strips can be turned over, the velvet-covered ones then being used as plain steel strips.



The length of the film gate and of the pressure skates is such that splices enter and leave the gate at the lowest possible speed of the film. Consequently there is hardly any risk of their breaking.

The film is guided laterally by four ceramic rollers, two at the top and two at the bottom of the film gate, which can easily be replaced if necessary.

The skate pressure is adjusted with one central knob; a scale facilitates checking and re-adjustment.

The aperture plates for different aspect ratios are inserted into a slit directly behind the gate; they snap automatically into their correct position and can readily be interchanged, even during projection.

Automatic film-rupture switch

This is a safety device in the film path. As soon as the upper film loop becomes too large — for example in the event of film rupture — it operates a micro-switch which at the slightest pressure switches off the motor and closes the electro-magnetic dowser.

"Start/Change-over/Stop" switch

Starting, change-over and stopping of the projector are effected with a single switch, which greatly facilitates operation.

Furthermore, this switch can be used for the rapid finding of the starting frame by pushing it quickly up and down; the film is thereby moved forward a short distance.

Lens holder

The lens holder is suitable for lenses with a diameter of up to 70.6 mm ($2^{25}/_{32}$"). It slides over a sturdy support fixed to the projector. The fine-focusing screw, in conjunction with a pressure spring, makes it possible to move the lens without any backlash.

The lens holder with lens can be taken from the support in a single manipulation so that, for change-over to another aspect ratio, it can readily be replaced by a holder fitted with the requisite lens. During installation the lenses are so adjusted in their holders that they can be interchanged without any re-focusing apart from a possible correction imposed by the film itself. A scale has been provided for checking the focusing.

On request, the projector can be equipped with an electric remote-control device for adjusting the focus from any part of the theatre.

Spool boxes

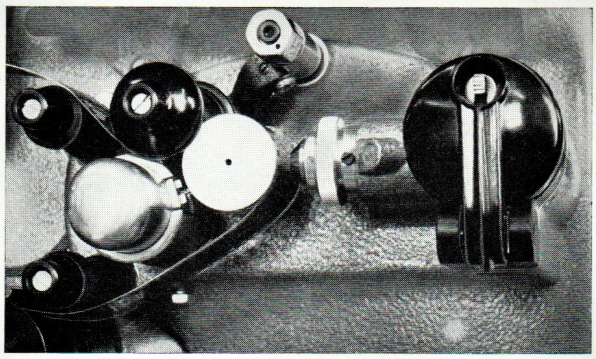
The projector can be supplied with spool boxes for either 2000 ft (600 m) or 6000 ft (1800 m) of film. The upper spool box has a time scale and an inspection lamp.

Soundheads

The projector can be equipped with both a magnetic and an optical soundhead. These form separate units which can easily be fitted and removed.

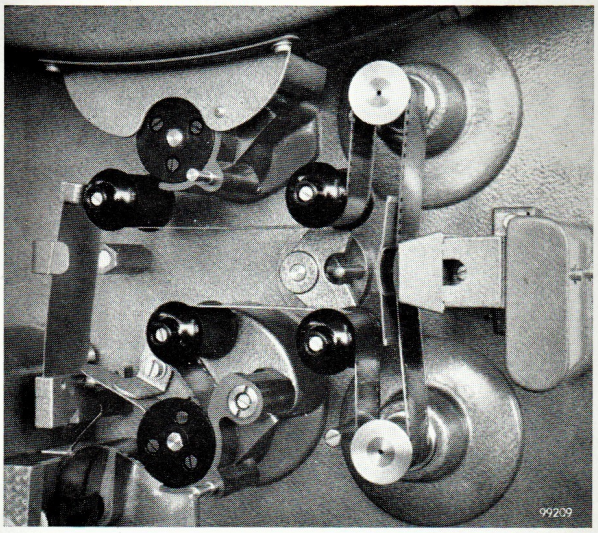
The necessary mounting holes for the soundheads are already provided in the projector cabinet. When they are not used, they are covered by an inconspicuous round plate.

Optical soundhead



This soundhead is of the same construction as that of the other well-known Philips projectors. The sound drum is driven by the film. The starting time is only about 3 seconds and a very small pull is sufficient to keep the drum rotating at its rated velocity. The film is therefore not stretched between the sound drum and the take-up sprocket but forms a slack loop which absorbs all the small shocks caused by the teeth engaging in the film perforations, thereby precluding any risk of hoarseness on account of the 96 c/s sprocket modulation.

Magnetic soundhead



The magnetic soundhead has two sound drums, running in precision ball-bearings and provided with heavy flywheels, and a head assembly for one-to-four track reproduction. When a magnetic soundhead is used, the projector is equipped with two feed sprockets, the upper one for pulling the film from the reel and the lower one for pulling it through the soundhead.

The required tension in the piece of film between the two feed sprockets is obtained by means of spring-loaded rollers.

Some important advantages of this design over the usual construction—where the feed sprocket is not coupled to the mechanism but driven by the film—are:

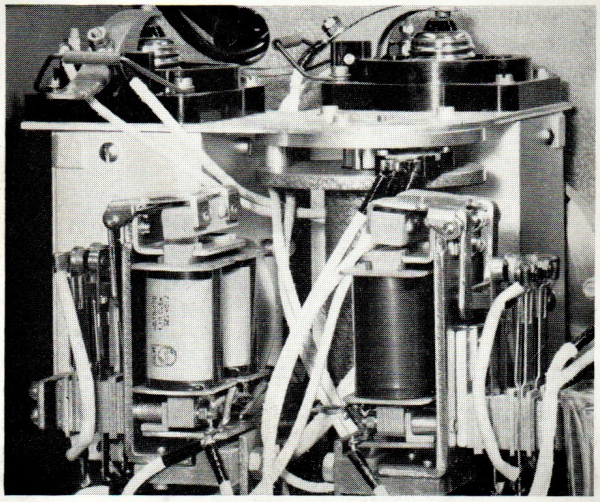
- lower stress on the film perforations;
- smoother running of the film through the soundhead, irregularities originating from the unwinding reel being completely excluded.

Automatic system-selector switch

When an FP 20 G projector, equipped with an optical and a magnetic soundhead, operates in conjunction with the Philips "OMA 4" amplifying equipment the choice optical/magnetic can be effected automatically when the film is threaded in the relevant soundhead by means of a selector switch, type EL 4214/00, to be mounted in the projector.

Lamp house

The lamp house (EL 4475/01) contains two 1000 W, 110 V incandescent lamps, one of which serves as a stand-by. Change-over to the stand-by lamp is effected by hand by means of a lever. The lamp is cooled efficiently by a ventilating unit mounted under the lamp house. The supply voltage for the lamp can be taken from the mains, either directly or via a separate transformer (types 3852 or EL 5006). The luminous flux with rotating shutter is about 800 lumens.



Dimensions and weights

Description	Type	Net weight	
		lb	kg
FP 20 G projector with optical soundhead and			
2000 ft (600 m) spool boxes	EL 4020/10 + EL 4475/01	324	147
6000 ft (1800 m) spool boxes	EL 4020/12 + EL 4475/01	386	175
FP 20 G projector with optical and magnetic soundhead and			
2000 ft (600 m) spool boxes	EL 4020/11 + EL 4475/01	338½	153.5
6000 ft (1800 m) spool boxes	EL 4020/13 + EL 4475/01	400	181.5
Lens holder	EL 4029	1¼	0.6

The above projectors are provided with an asynchronous motor for 220 V, 50 c/s, 24 frames/s.

On request, the projector can also be equipped with:

- asynchronous motor 110 V, 50 c/s or 60 c/s, 24 frames/s;
- synchronous motor 3 x 220/380 V, 50 c/s or 60 c/s, 24 frames/s;
- synchronous motor 3 x 220/380 V, 50 c/s, 25 frames/s.

Data subject to change without notice

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